



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,248	09/25/2006	Hideki Isono	Q80706	2182
23373 7590 03/29/2009				
SUGHRUE MION, PLLC				
2100 PENNSYLVANIA AVENUE, N.W.				
SUITE 800				
WASHINGTON, DC 20037				
EXAMINER				
FALASCO, LOUIS V				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
03/20/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/594,248

**Applicant(s)**

ISONO, HIDEKI

**Examiner**

LOUIS FALASCO

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 2-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 11-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 9/25/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Papers Received***

1. The Information Disclosure Statement filed 09/25/06 is acknowledged.
2. The Election filed 12/18/08 is acknowledged.

### ***Claims***

3. The claims are 1 to 14.

### ***Election/Restriction of Invention***

4. Applicants' election of Group II claims 11-14 without traverse is acknowledged.
5. Claims 1-13 have been withdrawn from consideration. The claims under consideration are 11-14. Since the elected claims are dependant on the non-elected claim 1, claim 1 has been included in this action as a linking claim for the elected invention of claims 11-14.

### ***Claim Rejections***

#### *Statutory Basis*

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

*Rejections*

8. Claims 11-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "low-temperature ion exchange" in claim 11 is a relative term which renders the claim indefinite.

- The term "low-temperature ion exchange" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The term 'main surface' in claim 14 is confusing.

- The term 'main surface' is defined in claim 11 as the surface a stress layer is formed on; however claim 14, dependent on claim 11, defines the same 'main surface' as the surface the magnetic layer is placed on rendering the use of 'main surface' in claim 14 with the terms' meaning unclear.

9. Claims 1 and 11-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over **Onoda et al** (JA 2002-220259) with either **Miyamoto et al** (JA 2001-167427) or **Miyamoto et al** (US 2002/0110706).

**Onoda et al** teaches a magnetic disk glass substrate, for use in a hard disk drive, having a thickness <0.5 mm (**Onoda et al** ¶[0036]) and where the substrate has opposing surface compressive stress layers on *main* (outer) surfaces. This would

reasonably be expected as this is merely an inherent property as compressive surfaces are formed on the 'main surface' by the same strengthening process step applicants specify (cf instant specification ¶¶[0079-83] pg 19-20 and **Onoda et al** ¶¶[0014], [0030]) – the resultant tension inherently forming a transitional stressed layer between the main surface and the strengthen compressed layer upper layer. Applicants have also claimed the stress, an impact resistance and waviness as 'predetermined' but claim no meets or bounds, however, desired characteristics would be a routine optimization the worker of ordinary skill would reasonably be expected to impose in commercial product manufacture; **Onoda et al** shows optimally adjusting strengthening to system operating conditions (**Onoda et al** ¶¶[0017], [0023], [0031]) and distortion tolerance ¶¶[0028].

**Onoda et al** does not teach have mirror-finished nor specify waviness. However these stands are conventions in the manufacture of magnetic recording disk substrates as evident from **Miyamoto et al** (JA) tolerances for stress level depth ¶¶[0031] waviness as a variation in the disk diameter ¶¶[0045] and mirror polishing ¶¶[0046]; and **Miyamoto et al** (US) teaches tolerances for stress level depth ¶¶[0268] waviness as a variation in the disk diameter ¶¶[0078], [0098], [0113], [0264], [0271] and mirror-finishing the disk (**Miyamoto et al** US mirror finish ¶¶[0099], [0172-174]). Applicants claim measuring with waviness a *Babinet* compensator; however it is not seen how the *Babinet* compensator instrument itself would change/effect the measure in the art since the art teaches measuring to the same degree applicants' claim.

It would be obvious to one having ordinary skill in the art to adopt the tolerances and measures shown for media disks in **Miyamoto et al** (JA) or **Miyamoto et al** (US)

for manufacture of the disk in **Onoda et al** to manufacture a disk for systems low fly head systems (**Miyamoto et al** (JA) at ¶[0005] and **Miyamoto et al** (US) at ¶[0010-15] and [0058]).

- As regards claim 11 **Onoda et al** teaches chemically strengthening by bringing the glass substrate into contact with a three nitrates (**Onoda et al** ¶[0011-13] to form compressive stress layers at both opposed 'main surfaces' of the glass – this is evident from the glass substrate being immersed in the strengthening treatment ¶[0047] – Examples 1, 3-5. The ion exchange is considered *low-temperature* ion exchange, though applicants offer no standards for the term, given ambient temperatures in **Onoda et al** ¶[0037], [0014]. The formation of a transition between the glass and compression layers, noted above, one would reasonably expect a transitioning tensile stress layer between the compressive stress layers and main surface. Also see **Miyamoto et al** (JA) at ¶[0015], [0030], and [0041].
- As regards claim 12 polishing see **Onoda et al** ¶[0047] for Examples 1, 3-5 and **Miyamoto et al** (JA) at ¶[0053] and **Miyamoto et al** (US) at ¶[0075], [0181-182].
- As regards claim 13 the mirror-finished surfaces have an arithmetic mean roughness (Ra) of 0.4 nm or less see **Miyamoto et al** (JA) ¶[0046]; **Miyamoto et al** (US) mirror finish Ra standard ¶[0058], [0062], [0099], [0172-174].

As regards 14. A method for manufacturing a magnetic disk, forming at least a magnetic layer on the main surface of the magnetic disk glass substrate manufactured by the method according to claim 11 does not seem possible since a strengthening layer of

nitrate are formed on that 'main surface'. This has been interpreted as being above the strengthening layer bases on the disclosure (e.g., Examples page 20, et seq.). The magnetic layer is present in **Onoda et al** ¶[0044]; **Miyamoto et al** (JA) at ¶[0053]; **Miyamoto et al** (US) at ¶[0217] et seq.

### ***Other References***

Translations of IDS documents provided in this action.

### ***Conclusion***

The claims are 1 to 14.

- Restriction has been required. Claim 11-14 have been elected; claim 1 has been included as a tying claim to the elected invention.
- No claim has been allowed.
- Information Disclosure Statement has been received.

### **INQUIRES**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Louis Falasco whose telephone number is (571)272-1507. The examiner can normally be reached on M-F 10:30 - 7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, C. Chaney can be reached at (571)272-1284. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

Art Unit: 1794

applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LF  
02/09

/Louis Falasco/  
Examiner, Art Unit 1794

/Kevin M Bernatz/  
Primary Examiner, Art Unit 1794

March 1, 2009